

THAT WHICH IS CLAIMED:

1. A method for providing product availability information to a user from at least one product source, said method comprising:

- 5 accessing at least one product source and requesting product availability information concerning at least one product prior to receipt of a product availability request from a user concerning the product;
- storing the product availability information received from the product source in a storage device;
- 10 receiving a product availability request from a user concerning a product;
- accessing the information prestored in the storage device for the selected product;
- and
- determining the availability of the product based on at least the availability information prestored in the storage device.

- 15 2. A method according to Claim 1, wherein said accessing and storing steps access a plurality of product sources, requests product availability information concerning at least one product, and store the product availability information for the at least one product from each product source in the storage device.

3. A method according to Claim 1 further comprising updating the product availability information stored in the storage device by accessing the product sources, requesting availability information about the product, and storing the product availability information in the storage device.
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4. A method according to Claim 1 wherein a product may be used on different start dates for different lengths of time, wherein said storing step stores availability information for each start date and each length of time associated with each start date, said method further comprising:
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 updating availability information in the storage device for start dates of use that occur sooner in time than for start dates of use that occur later in time.

5 5. A method according to Claim 4, wherein said updating step determines which start dates of use to update the availability information in the storage device for by using a decaying exponential function to define the start dates to be updated, such that start dates of use that occur sooner in time are updated more often than start dates of use that occur later in time.

6. A method according to Claim 4, wherein said updating step determines which start dates of use to update the availability information for in the storage device by using the following function:

$$\text{Start Date} = N^{(\log \text{ day} / \log \text{ length})}$$

10 where

Start Date = date to be queried

N = integer number (0, 1, 2, 3, . . . Day)

Day = maximum number of days out to be queried

Length = maximum number of days that can be returned in a query list.

15 7. A method according to Claim 6, wherein said function generates a list of numbers, wherein said method further comprises adding each number in the list to said current date to determine the product availability for which start dates should be updated by said updating step in the storage device.

20 8. A method according to Claim 1, wherein the product can be used on a particular start date of use for different lengths of use, wherein for each length of use for each start date said accessing and storing steps access product sources, requests availability information concerning the product for the particular start date of use and length of use, and stores the availability information in the storage device.

25 9. A method according to Claim 8, further comprising updating availability information in the storage device more often for start dates that occur sooner in time than for start dates that occur later in time, wherein for each start date, said updating step updates the product availability information for each length of use associated with the start date.

10. A method according to Claim 3, wherein the storage device comprises product availability information from a plurality of product sources, wherein said method further comprises providing a score for each product source based at least on a popularity of the product source, and said updating step comprises updating the availability
5 information stored in the storage device for each product source based on the score associated with each product source.

11. A method according to Claim 10, wherein said updating step updates product availability for product sources having higher scores more than product sources having lower scores.

10 12. A method according to Claim 10, wherein said updating step performs a selected number of updates of product source information for a given update session, said updating step assigns more updates to product sources having higher scores than to product sources having lower scores.

13. A method according to Claim 12, wherein a minimum number of updates are
15 performed on each product source independent of the product source's associated score.

14. A method according to Claim 1, wherein the product can be used on a particular start date and for different lengths of use from the start date, and wherein said storing step only stores product availability information for a maximum number of lengths of use for each start date.

20 15. A method according to Claim 14, wherein said receiving, accessing, and determining steps comprise:
receiving an availability request from a user concerning a product for a given start date and length of use;
accessing the information prestored in the storage device for the selected product;
25 and
determining the availability of the product based on the selected start date and length of use from the availability information prestored in the storage device.

16. A method according to Claim 15, wherein when the length of use for a product exceeds the maximum length of use stored in the storage device, said determining step comprises:

5 dividing the length of use requested by the user into at least two selected start dates and lengths of use that are each less than the maximum length of use stored in the storage device, and have start dates and lengths of use that collectively correspond to the dates covered by the requested start date and length of use; and

 determining the availability of the product for each selected start date and length of use to thereby determine the availability of the product for the requested start date and
10 length of use.

17. A method according to Claim 16, wherein said dividing step divides the requested start date and length of use into at least two selected start dates and lengths of use, wherein each selected length of use covers at least two dates.

18. A method according to Claim 16, wherein said dividing step creates at least
15 two scenarios, wherein each scenarios includes a set of selected start dates and lengths of use that are each less than the maximum length of say, and have start dates and lengths of use that collectively correspond to the dates covered by the requested start date and length of use, and wherein at least one of the start dates of one scenario is different from the start date of the other scenario.

20 19. A method according to Claim 16, wherein said dividing step creates at least two scenarios, wherein each scenario includes a set of selected start dates and lengths of use that are each less than the maximum length of use, and have start dates and lengths of use that collectively correspond to the dates covered by the requested start date and length of use, said dividing step using the following function to create the scenarios:

25 1) If $LOS \text{ modulo } X = 0$

 where

LOS = length of use of request

X = maximum length of use stored in the cache

30 Then

Scenario 1 : A, B, C

$$A = x / 2$$

$$B = \sum_1^{\text{int}((LOS-(x/2))/x)} x$$

$$C = LOS - (A + B)$$

Scenario 2 :

$$= \sum_1^{\text{int}(LOS/x)} x$$

2) If LOS modulo X > 0
Then

Scenario 1 : A, B, C

$$A = (x - 1)$$

$$B = \sum_1^{\text{int}(LOS-A)/x)} x$$

$$C = LOS - (A + B)$$

Scenario 2 : C, B, A

20. A system for providing product availability information to a user from at least one product source, said system comprising:

an interface connected to at least one product source;

a processing element connected to said interface for communicating with the product source; and

a storage device in electrical communication with said processing element, wherein said processing element:

accesses at least one product source and requests product availability information concerning at least one product prior to receipt of a product availability request from a user concerning the product;

stores the product availability information received from the product source in said storage device;

receives a product availability request from a user concerning a product;

accesses the information prestored in the storage device for the selected product;
and

determines the availability of the product based on at least the availability
information prestored in the storage device.

5 21. A system according to Claim 20, wherein said processing element further
updates the product availability information stored in the storage device by accessing the
product sources, requesting availability information about the product, and storing the
product availability information in the storage device.

10 22. A system according to Claim 20, wherein a product may be used on different
start dates for different lengths of time, wherein said processing element stores
availability information for each start date and each length of time associated with each
start date and updates availability information in the storage device for start dates of use
that occur sooner in time than for start dates of use that occur later in time.

15 23. A system according to Claim 22, wherein said processing element determines
which start dates of use to update the availability information in the storage device for by
using a decaying exponential function to define the start dates to be updated, such that
start dates of use that occur sooner in time are updated more often than start dates of use
that occur later in time.

20 24. A system according to Claim 22, wherein said processing element determines
which start dates of use to update the availability information for in the storage device by
using the following function:

$$\text{Start Date} = N^{(\log \text{ day} / \log \text{ length})}$$

where

Start Date = date to be queried

25 N = integer number (0, 1, 2, 3, . . . Day)

Day = maximum number of days out to be queried

Length = maximum number of days that can be returned in a query list.

25. A system according to Claim 21, wherein said storage device comprises product availability information from a plurality of product sources, wherein said processing element provides a score for each product source based at least on a popularity of the product source and updates the availability information stored in said storage device for each product source based on the score associated with each product source.

26. A system according to Claim 20, wherein the product can be used on a particular start date and for different lengths of use from the start date, and wherein said processing element stores product availability information for a maximum number of lengths of use for each start date.

27. A system according to Claim 26, wherein when the length of use for a product exceeds the maximum length of use stored in the storage device, said processing element:

divides the length of use requested by the user into at least two selected start dates and lengths of use that are each less than the maximum length of use stored in said storage device, and have start dates and lengths of use that collectively correspond to the dates covered by the requested start date and length of use; and

determines the availability of the product for each selected start date and length of use to thereby determine the availability of the product for the requested start date and length of use.

28. A system according to Claim 27, wherein said processing element divides the requested start date and length of use into at least two selected start dates and lengths of use, wherein each selected length of use covers at least two dates.

29. A system according to Claim 27, wherein said processing element creates at least two scenarios, wherein each scenarios includes a set of selected start dates and lengths of use that are each less than the maximum length of say, and have start dates and lengths of use that collectively correspond to the dates covered by the requested start date and length of use, and wherein at least one of the start dates of one scenario is different from the start date of the other scenario.

30. A system according to Claim 27, wherein said processing element creates at least two scenarios, wherein each scenario includes a set of selected start dates and lengths of use that are each less than the maximum length of use, and have start dates and lengths of use that collectively correspond to the dates covered by the requested start date and length of use, said processing element uses the following function to create the scenarios:

1) If LOS modulo X = 0

where

LOS = length of use of request

X = maximum length of use stored in the cache

Then

Scenario 1: A, B, C

$$A = x / 2$$

$$B = \sum_{i=1}^{\text{int}((\text{LOS} - (x/2))/x)} x$$

$$C = \text{LOS} - (A + B)$$

Scenario 2:

$$= \sum_{i=1}^{\text{int}(\text{LOS}/x)} x$$

2) If LOS modulo X > 0

Then

Scenario 1: A, B, C

$$A = (x - 1)$$

$$B = \sum_{i=1}^{\text{int}((\text{LOS} - A)/x)} x$$

$$C = \text{LOS} - (A + B)$$

Scenario 2: C, B, A

31. A computer program product for providing product availability information to a user from at least one product source, wherein the computer program product comprises:

a computer readable storage medium having computer readable program code means embodied in said medium, said computer-readable program code means comprising:

5 first computer-readable program code means for accessing at least one product source and requesting product availability information concerning at least one product prior to receipt of a product availability request from a user concerning the product;

second computer-readable program code means for storing the product availability information received from the product source in a storage device;

10 third computer-readable program code means for receiving a product availability request from a user concerning a product;

fourth computer-readable program code means for accessing the information prestored in the storage device for the selected product; and

fifth computer-readable program code means for determining the availability of the product based on at least the availability information prestored in the storage device.

15 32. A computer program product according to Claim 31 further comprising sixth computer-readable program code means for updating the product availability information stored in the storage device by accessing the product sources, requesting availability information about the product, and storing the product availability information in the storage device.

20 33. A computer program product according to Claim 31, wherein a product may be used on different start dates for different lengths of time, wherein said second computer-readable program code means stores availability information for each start date and each length of time associated with each start date, said computer readable medium further comprises:

25 sixth computer-readable program code means for updating availability information in the storage device for start dates of use that occur sooner in time than for start dates of use that occur later in time.

34. A computer program product according to Claim 33, wherein said sixth computer-readable program code means determines which start dates of use to update the availability information for in the storage device by using the following function:

$$\text{Start Date} = N^{(\log \text{ day} / \log \text{ length})}$$

5 where

Start Date = date to be queried

N = integer number (0, 1, 2, 3, . . . Day)

Day = maximum number of days out to be queried

Length = maximum number of days that can be returned in a query list.

10 35. A computer program product according to Claim 32, wherein the storage device comprises product availability information from a plurality of product sources, wherein said computer readable medium further comprises seventh computer-readable code means for providing a score for each product source based at least on a popularity of the product source, and said sixth computer-readable codes means updates the availability
15 information stored in the storage device for each product source based on the score associated with each product source.

36. A computer program product according to Claim 31, wherein the product can be used on a particular start date and for different lengths of use from the start date, and wherein said second computer-readable program code means only stores product
20 availability information for a maximum number of lengths of use for each start date.

37. A computer program product according to Claim 36, wherein when the length of use for a product exceeds the maximum length of use stored in the storage device, said fifth computer-readable program code means:

divides the length of use requested by the user into at least two selected start dates
25 and lengths of use that are each less than the maximum length of use stored in the storage device, and have start dates and lengths of use that collectively correspond to the dates covered by the requested start date and length of use; and

determines the availability of the product for each selected start date and length of use to thereby determine the availability of the product for the requested start date and length of use.

38. A computer program product according to Claim 37, wherein said fifth
5 computer-readable program code means divides the requested start date and length of use into at least two selected start dates and lengths of use, wherein each selected length of use covers at least two dates.

39. A computer program product according to Claim 37, wherein said fifth
10 computer-readable program code means creates at least two scenarios, wherein each scenario includes a set of selected start dates and lengths of use that are each less than the maximum length of say, and have start dates and lengths of use that collectively correspond to the dates covered by the requested start date and length of use, and wherein at least one of the start dates of one scenario is different from the start date of the other scenario.

15 40. A computer program product according to Claim 37, wherein said fifth computer-readable program code means creates at least two scenarios, wherein each scenario includes a set of selected start dates and lengths of use that are each less than the maximum length of use, and have start dates and lengths of use that collectively correspond to the dates covered by the requested start date and length of use, said fifth
20 computer-readable program code means uses the following function to create the scenarios:

1) If $LOS \text{ modulo } X = 0$

where

LOS = length of use of request

25 X = maximum length of use stored in the cache

Then

Scenario 1: A, B, C

$$A = x / 2$$

$$B = \sum_1^{\text{int}((LOS - (x/2))/x)} x$$

$$C = LOS - (A + B)$$

Scenario 2:

$$= \sum_1^{\text{int}(LOS/x)} x$$

2) If LOS modulo X > 0

Then

Scenario 1: A, B, C

$$A = (x - 1)$$

$$B = \sum_1^{\text{int}(LOS - A)/x} x$$

$$C = LOS - (A + B)$$

Scenario 2: C, B, A

41. A method for providing product availability information to a user from at least one product source, where a product may be used on different start dates, said method comprising:

- accessing at least one product source and requesting product availability
10 information concerning at least one product for different start dates of use prior to receipt of a product availability request from a user concerning the product;
storing the product availability information received from the product source in a storage device;
determining the availability of a requested product by a user based on at least the
15 availability information prestored in the storage device; and
updating availability information in the storage device for start dates of use of the product that occur sooner in time than for start dates of use that occur later in time.

42. A method according to Claim 41, wherein said updating step determines which start dates of use to update the availability information in the storage device for by

using a decaying exponential function to define the start dates to be updated, such that start dates of use that occur sooner in time are updated more often than start dates of use that occur later in time.

43. A method according to Claim 41, wherein said updating step determines
5 which start dates of use to update the availability information for in the storage device by using the following function:

$$\text{Start Date} = N^{(\log \text{ day} / \log \text{ length})}$$

where

Start Date = date to be queried

10 N = integer number (0, 1, 2, 3, . . . Day)

Day = maximum number of days out to be queried

Length = maximum number of days that can be returned in a query list.

44. A method according to Claim 43, wherein said function generates a list of numbers, wherein said method further comprises adding each number in the list to said
15 current date to determine the product availability for which start dates should be updated by said updating step in the storage device.

45. A method according to Claim 41, wherein the product can be used on a particular start date of use for different lengths of use, wherein for each length of use for each start date said accessing and storing steps access product sources, requests
20 availability information concerning the product for the particular start date of use and length of use, and stores the availability information in the storage device.

46. A method according to Claim 45, further comprising updating availability information in the storage device more often for start dates that occur sooner in time than for start dates that occur later in time, wherein for each start date, said updating step
25 updates the product availability information for each length of use associated with the start date.

47. A system for providing product availability information to a user from at least one product source, where a product may be used on different start dates, said system comprising:

an interface connected to at least one product source;

5 a processing element connected to said interface for communicating with the product source; and

a storage device in electrical communication with said processing element, wherein said processing element:

accesses at least one product source and requests product availability information concerning at least one product for different start dates of use prior to receipt of a product availability request from a user concerning the product;

stores the product availability information received from the product source in said storage device;

determines the availability of a requested product by a user based on at least the availability information prestored in said storage device; and

15 updates availability information in the storage device for start dates of use of the product that occur sooner in time than for start dates of use that occur later in time.

48. A system according to Claim 47, wherein said processing element determines which start dates of use to update the availability information in the storage device for by using a decaying exponential function to define the start dates to be updated, such that start dates of use that occur sooner in time are updated more often than start dates of use that occur later in time.

49. A system according to Claim 47, wherein said processing element determines which start dates of use to update the availability information for in the storage device by using the following function:

$$\text{Start Date} = N^{(\log \text{ day} / \log \text{ length})}$$

where

Start Date = date to be queried

N = integer number (0, 1, 2, 3, . . . Day)

30 Day = maximum number of days out to be queried

Length = maximum number of days that can be returned in a query list.

50. A computer program product for providing product availability information to a user from at least one product source, where a product may be used on different start dates, wherein the computer program product comprises:

5 a computer readable storage medium having computer readable program code means embodied in said medium, said computer-readable program code means comprising:

10 first computer-readable program code means for accessing at least one product source and requesting product availability information concerning at least one product for different start dates of use prior to receipt of a product availability request from a user concerning the product;

 second computer-readable program code means for storing the product availability information received from the product source in a storage device;

15 third computer-readable program code means for determining the availability of a requested product by a user based on at least the availability information prestored in the storage device; and

 fourth computer-readable program code means for updating availability information in the storage device for start dates of use of the product that occur sooner in time than for start dates of use that occur later in time.

20 51. A computer program product according to Claim 50, wherein said fourth computer-readable program code means determines which start dates of use to update the availability information in the storage device for by using a decaying exponential function to define the start dates to be updated, such that start dates of use that occur sooner in time are updated more often than start dates of use that occur later in time.

25 52. A computer program product according to Claim 50, wherein said fourth computer-readable program code means determines which start dates of use to update the availability information for in the storage device by using the following function:

$$\text{Start Date} = N^{(\log \text{ day} / \log \text{ length})}$$

where

Start Date = date to be queried

N = integer number (0, 1, 2, 3, . . . Day)

Day = maximum number of days out to be queried

Length = maximum number of days that can be returned in a query list.

- 5 53. A method for providing product availability information to a user from at least two product sources, said method comprising:
- accessing the at least two product sources and requesting product availability information concerning at least one product prior to receipt of a product availability request from a user concerning the product;
- 10 storing the product availability information received from the product sources in a storage device;
- determining the availability of a requested product by a user based on at least the availability information prestored in the storage device;
- providing a score for each product source based at least on a popularity of the
- 15 product source; and
- updating the availability information stored in the storage device for each product source based on the score associated with each product source.

54. A method according to Claim 53, wherein said updating step updates product availability for product sources having higher scores more than product sources having
- 20 lower scores.

55. A method according to Claim 53, wherein said updating step performs a selected number of updates of product source information for a given update session, said updating step assigns more updates to product sources having higher scores than to product sources having lower scores.

- 25 56. A method according to Claim 55, wherein a minimum number of updates are performed on each product source independent of the product source's associated score.

57. A system for providing product availability information to a user from at least two product sources, said system comprising:

an interface connected to at least one product source;
a processing element connected to said interface for communicating with the product source; and
a storage device in electrical communication with said processing element,
5 wherein said processing element:
accesses the at least two product sources and requests product availability information concerning at least one product prior to receipt of a product availability request from a user concerning the product;
stores the product availability information received from the product sources in a
10 storage device;
determines the availability of a requested product by a user based on at least the availability information prestored in the storage device;
provides a score for each product source based at least on a popularity of the product source; and
15 updates the availability information stored in the storage device for each product source based on the score associated with each product source.

58. A system according to Claim 57, wherein said processing element updates product availability for product sources having higher scores more than product sources having lower scores.

20 59. A system according to Claim 57, wherein said processing element performs a selected number of updates of product source information for a given update session and assigns more updates to product sources having higher scores than to product sources having lower scores.

25 60. A system according to Claim 59, wherein a minimum number of updates are performed on each product source independent of the product source's associated score.

61. A computer program product for providing product availability information to a user from at least two product sources, wherein the computer program product comprises:

a computer readable storage medium having computer readable program code means embodied in said medium, said computer-readable program code means comprising:

5 first computer-readable program code means for accessing the at least two product sources and requesting product availability information concerning at least one product prior to receipt of a product availability request from a user concerning the product;

second computer-readable program code means for storing the product availability information received from the product sources in a storage device;

10 third computer-readable program code means for determining the availability of a requested product by a user based on at least the availability information prestored in the storage device;

fourth computer-readable program code means for providing a score for each product source based at least on a popularity of the product source; and

15 fifth computer-readable program code means for updating the availability information stored in the storage device for each product source based on the score associated with each product source.

62. A computer program product according to Claim 61, wherein said fifth computer-readable program code means updates product availability for product sources
20 having higher scores more than product sources having lower scores.

63. A computer program product according to Claim 61, wherein said fifth computer-readable program code means performs a selected number of updates of product source information for a given update session, said fourth computer-readable program code means assigns more updates to product sources having higher scores than
25 to product sources having lower scores.

64. A computer program product according to Claim 63, wherein a minimum number of updates are performed on each product source independent of the product source's associated score.

65. A method for providing product availability information to a user from at least one product source, where a product may be used on different start dates and for different lengths of use from the start date, said method comprising:

accessing at least one product source and requesting product availability
5 information concerning at least one product prior to receipt of a product availability request from a user concerning the product;
storing the product availability information received from the product source in a storage device;
receiving a product availability request from a user concerning a product;
10 accessing the information prestored in the storage device for the selected product;
and
determining the availability of the product based on at least the availability information prestored in the storage device,
wherein said storing step only stores product availability information for a
15 maximum number of lengths of use for each start date.

66. A method according to Claim 65, wherein said receiving, accessing, and determining steps comprise:

receiving an availability request from a user concerning a product for a given start date and length of use;
20 accessing the information prestored in the storage device for the selected product;
and
determining the availability of the product based on the selected start date and length of use from the availability information prestored in the storage device.

67. A method according to Claim 65, wherein when the length of use for a
25 product exceeds the maximum length of use stored in the storage device, said determining step comprises:

dividing the length of use requested by the user into at least two selected start dates and lengths of use that are each less than the maximum length of use, and have start dates and lengths of use that collectively correspond to the dates covered by the requested
30 start date and length of use; and

determining the availability of the product for each selected start date and length of use to thereby determine the availability of the product for the requested start date and length of use.

68. A method according to Claim 67, wherein said dividing step divides the requested start date and length of use into at least two selected start dates and lengths of use, wherein each selected length of use covers at least two dates.

69. A method according to Claim 67, wherein said dividing step creates at least two scenarios, wherein each scenarios includes a set of selected start dates and lengths of use that are each less than the maximum length of say, and have start dates and lengths of use that collectively correspond to the dates covered by the requested start date and length of use, and wherein at least one of the start dates of one scenario is different from the start date of the other scenario.

70. A method according to Claim 67, wherein said dividing step creates at least two scenarios, wherein each scenario includes a set of selected start dates and lengths of use that are each less than the maximum length of use, and have start dates and lengths of use that collectively correspond to the dates covered by the requested start date and length of use, said dividing step using the following function to create the scenarios:

1) If $LOS \bmod X = 0$

where
LOS = length of use of request
X = maximum length of use stored in the cache

Then

Scenario 1 : A, B, C

$$A = x / 2$$

$$B = \sum_1^{\text{int}((LOS - (x/2))/x)} x$$

$$C = LOS - (A + B)$$

Scenario 2 :

$$= \sum_1^{\text{int}(LOS/x)} x$$

2) If LOS modulo X > 0
Then

Scenario 1: A, B, C

$$A = (x - 1)$$

$$B = \sum_1^{\text{int}((LOS-A)/x)} x$$

$$C = LOS - (A + B)$$

Scenario 2: C, B, A

5 71. A method according to Claim 65, wherein for each start date there are a maximum length of use and different shorter lengths of use, wherein said storing step may determine which of the shorter lengths of use can be derived from the maximum lengths of use and thereby only stores in the storage device availability information for the maximum length of use and the shorter lengths of use that are derivable from the
10 maximum length of use.

72. A method according to Claim 71, wherein if a price associated with a first shorter length of use is substantially equal to a price associated with the maximum length of use, then said storing step determines that the first shorter length of use is derivable from the maximum length of use.

15 73. A system for providing product availability information to a user from at least one product source, where a product may be used on different start dates and for different lengths of use from the start date, said system comprising:

an interface connected to at least one product source;

a processing element connected to said interface for communicating with the
20 product source; and

a storage device in electrical communication with said processing element,
wherein said processing element:

accesses at least one product source and requests product availability information concerning at least one product prior to receipt of a product availability request from a user concerning the product;

5 stores the product availability information received from the product source in a storage device;

receives a product availability request from a user concerning a product;

accesses the information prestored in the storage device for the selected product; and

10 determines the availability of the product based on at least the availability information prestored in the storage device,

wherein said processing element only stores product availability information for a maximum number of lengths of use for each start date.

74. A system according to Claim 73, wherein when the length of use for a product exceeds the maximum length of use stored in the storage device, said processor:

15 divides the length of use requested by the user into at least two selected start dates and lengths of use that are each less than the maximum length of use, and have start dates and lengths of use that collectively correspond to the dates covered by the requested start date and length of use; and

20 determines the availability of the product for each selected start date and length of use to thereby determine the availability of the product for the requested start date and length of use.

75. A system according to Claim 74, wherein said processing element divides the requested start date and length of use into at least two selected start dates and lengths of use, wherein each selected length of use covers at least two dates.

25 76. A system according to Claim 74, wherein said processing element creates at least two scenarios, wherein each scenarios includes a set of selected start dates and lengths of use that are each less than the maximum length of say, and have start dates and lengths of use that collectively correspond to the dates covered by the requested start date

and length of use, and wherein at least one of the start dates of one scenario is different from the start date of the other scenario.

77. A system according to Claim 74, wherein said processing element creates at least two scenarios, wherein each scenario includes a set of selected start dates and
5 lengths of use that are each less than the maximum length of use, and have start dates and lengths of use that collectively correspond to the dates covered by the requested start date and length of use, said processing element using the following function to create the scenarios:

1) If LOS modulo X = 0

10 where
 LOS = length of use of request
 X = maximum length of use stored in the cache

Then

Scenario 1 : A, B, C

$$A = x / 2$$

$$B = \sum_1^{\text{int}(\text{LOS} - (x/2)) / x} x$$

15 $C = \text{LOS} - (A + B)$

Scenario 2 :

$$= \sum_1^{\text{int}(\text{LOS} / x)} x$$

2) If LOS modulo X > 0

Then

Scenario 1 : A, B, C

$$A = (x - 1)$$

$$B = \sum_1^{\text{int}(\text{LOS} - A) / x} x$$

$$C = \text{LOS} - (A + B)$$

Scenario 2 : C, B, A

78. A system according to Claim 73, wherein for each start date there are a maximum length of use and different shorter lengths of use, wherein said processing element determines which of the shorter lengths of use can be derived from the maximum lengths of use and thereby only stores in the storage device availability information for the maximum length of use and the shorter lengths of use that are derivable from the maximum length of use.

79. A system according to Claim 78, wherein if a price associated with a first shorter length of use is substantially equal to a price associated with the maximum length of use, then said processing element determines that the first shorter length of use is derivable from the maximum length of use.

80. A computer program product for providing product availability information to a user from at least one product source, where a product may be used on different start dates and for different lengths of use from the start date, wherein the computer program product comprises:

a computer readable storage medium having computer readable program code means embodied in said medium, said computer-readable program code means comprising:

first computer-readable program code means for accessing at least one product source and requesting product availability information concerning at least one product prior to receipt of a product availability request from a user concerning the product;

second computer-readable program code means for storing the product availability information received from the product source in a storage device;

third computer-readable program code means for receiving a product availability request from a user concerning a product;

fourth computer-readable program code means for accessing the information prestored in the storage device for the selected product; and

fifth computer-readable program code means for determining the availability of the product based on at least the availability information prestored in the storage device,

wherein said second computer-readable program code means only stores product availability information for a maximum number of lengths of use for each start date.

81. A computer program product according to Claim 80, wherein:
said third computer-readable program code means receives an availability request
5 from a user concerning a product for a given start date and length of use;
said fourth computer-readable program code means accesses the information
prestored in the storage device for the selected product; and
said fifth computer-readable program code means determines the availability of
the product based on the selected start date and length of use from the availability
10 information prestored in the storage device.

82. A computer program product according to Claim 80, wherein when the length
of use for a product exceeds the maximum length of use stored in the storage device, said
fifth computer-readable program code means:
divides the length of use requested by the user into at least two selected start dates
15 and lengths of use that are each less than the maximum length of use, and have start dates
and lengths of use that collectively correspond to the dates covered by the requested start
date and length of use; and
determines the availability of the product for each selected start date and length of
use to thereby determine the availability of the product for the requested start date and
20 length of use.

83. A computer program product according to Claim 82, wherein said fifth
computer-readable program code means divides the requested start date and length of use
into at least two selected start dates and lengths of use, wherein each selected length of
use covers at least two dates.

84. A computer program product according to Claim 83, wherein said fifth
computer-readable program code means creates at least two scenarios, wherein each
scenarios includes a set of selected start dates and lengths of use that are each less than
the maximum length of say, and have start dates and lengths of use that collectively
correspond to the dates covered by the requested start date and length of use, and wherein

at least one of the start dates of one scenario is different from the start date of the other scenario.

85. A computer program product according to Claim 82, wherein said fifth computer-readable program code means creates at least two scenarios, wherein each scenario includes a set of selected start dates and lengths of use that are each less than the maximum length of use, and have start dates and lengths of use that collectively correspond to the dates covered by the requested start date and length of use, said dividing step using the following function to create the scenarios:

1) If $LOS \text{ modulo } X = 0$

10

where

LOS = length of use of request

X = maximum length of use stored in the cache

Then

Scenario 1: A, B, C

$$A = x / 2$$

$$B = \sum_1^{\text{int}((LOS - (x/2))/x)} x$$

15

$$C = LOS - (A + B)$$

Scenario 2:

$$= \sum_1^{\text{int}(LOS/x)} x$$

2) If $LOS \text{ modulo } X > 0$

Then

Scenario 1: A, B, C

$$A = (x - 1)$$

$$B = \sum_1^{\text{int}(LOS - A)/x} x$$

$$C = LOS - (A + B)$$

Scenario 2: C, B, A

86. A method for providing product availability information to a user from at least two product sources, said method comprising:

accessing the at least two product sources and requesting product availability information concerning at least one product prior to receipt of a product availability

5 request from a user concerning the product;

storing the product availability information received from the product sources in a storage device;

determining the availability of a requested product by a user based on at least the availability information prestored in the storage device;

10 providing the user with availability information concerning the product from each product source;

accumulating the number of times that a product source's product relates to an availability request and the number of times that the product source had availability for the requested product;

15 dividing the number of times that the product source had availability for the requested product by the number of times that a product source's product related to an availability request to thereby determine a hit ratio;

comparing the hit ratio to a hit ratio threshold; and

20 updating the availability information stored in the storage device for product sources, wherein said updating step increases the number of times availability information is updated for a product source having a hit ratio that is less than or equal to the hit ratio threshold.

87. A method according to Claim 86, wherein said updating step decreases the number of times availability information is updated for a product source having a hit ratio
25 that is at least as great as the hit ratio threshold.

88. A system for providing product availability information to a user from at least two product sources, said system comprising:

an interface connected to at least one product source;

30 a processing element connected to said interface for communicating with the product source; and

a storage device in electrical communication with said processing element,
wherein said processing element:

accesses the at least two product sources and requests product availability
information concerning at least one product prior to receipt of a product availability

5 request from a user concerning the product;

stores the product availability information received from the product sources in a
storage device;

determines the availability of a requested product by a user based on at least the
availability information prestored in the storage device;

10 provides the user with availability information concerning the product from each
product source;

accumulates the number of times that a product source's product relates to an
availability request and the number of times that the product source had availability for
the requested product;

15 divides the number of times that the product source had availability for the
requested product by the number of times that a product source's product related to an
availability request to thereby determine a hit ratio;

compares the hit ratio to a hit ratio threshold; and

updates the availability information stored in the storage device for product
20 sources, wherein said updates step increases the number of times availability information
is updated for a product source having a hit ratio that is less than or equal to the hit ratio
threshold.

89. A system according to Claim 88, wherein said processing element decreases
the number of times availability information is updated for a product source having a hit
25 ratio that is at least as great as the hit ratio threshold.